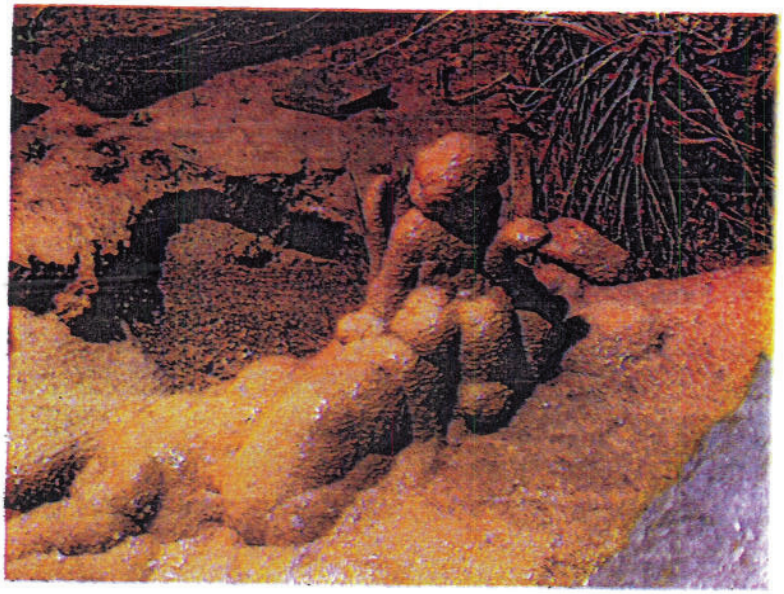
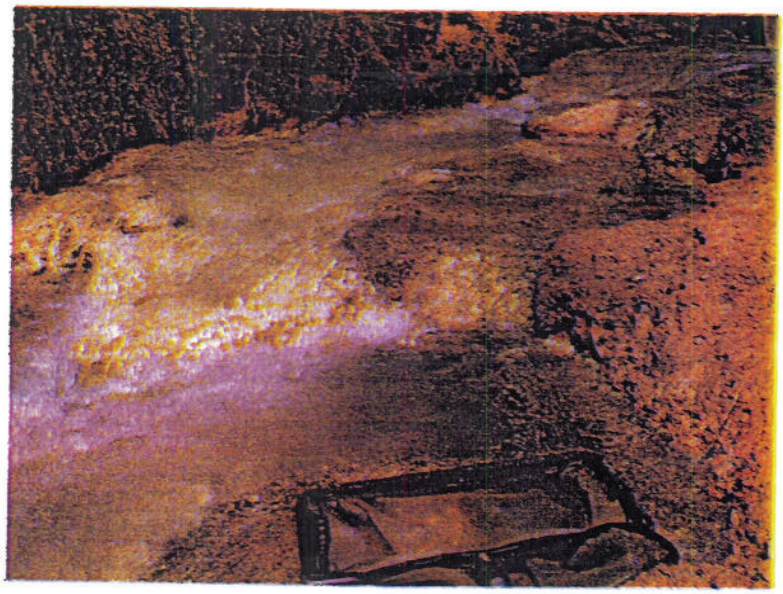
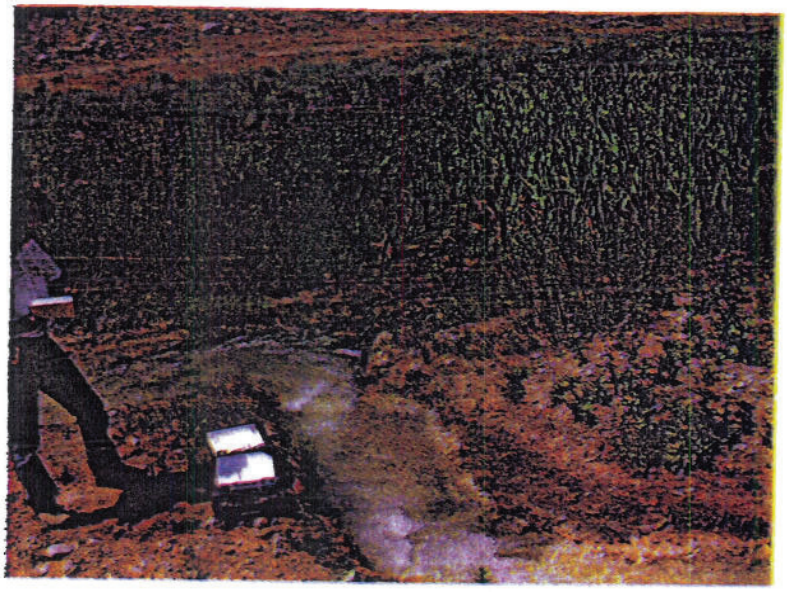


MS10-1: A "water baby" or angel was discovered below the first culvert on the road leading to the Maverick Springs field.



MS10-2: As the temperature lowers the calcium carbonate comes out of solution and forms heavy precipitates. The current is strong in this gully section.



MS10-3: This shows the confluence of the cloudy Maverick Springs water with the clear Chatterton waters.

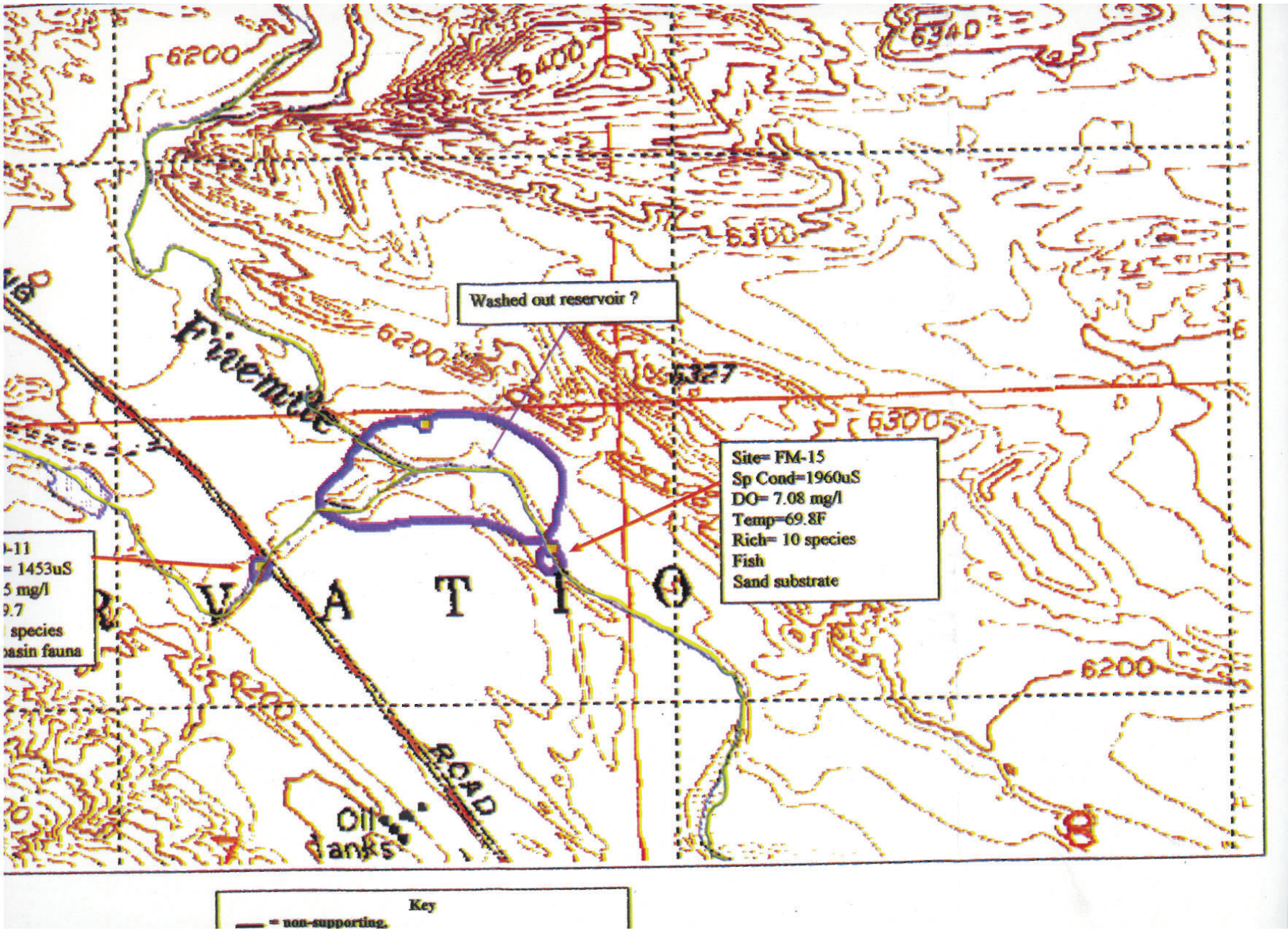
The lower site on Coal Draw creek at the Circle Ridge/Maverick Springs Road (CD-11)

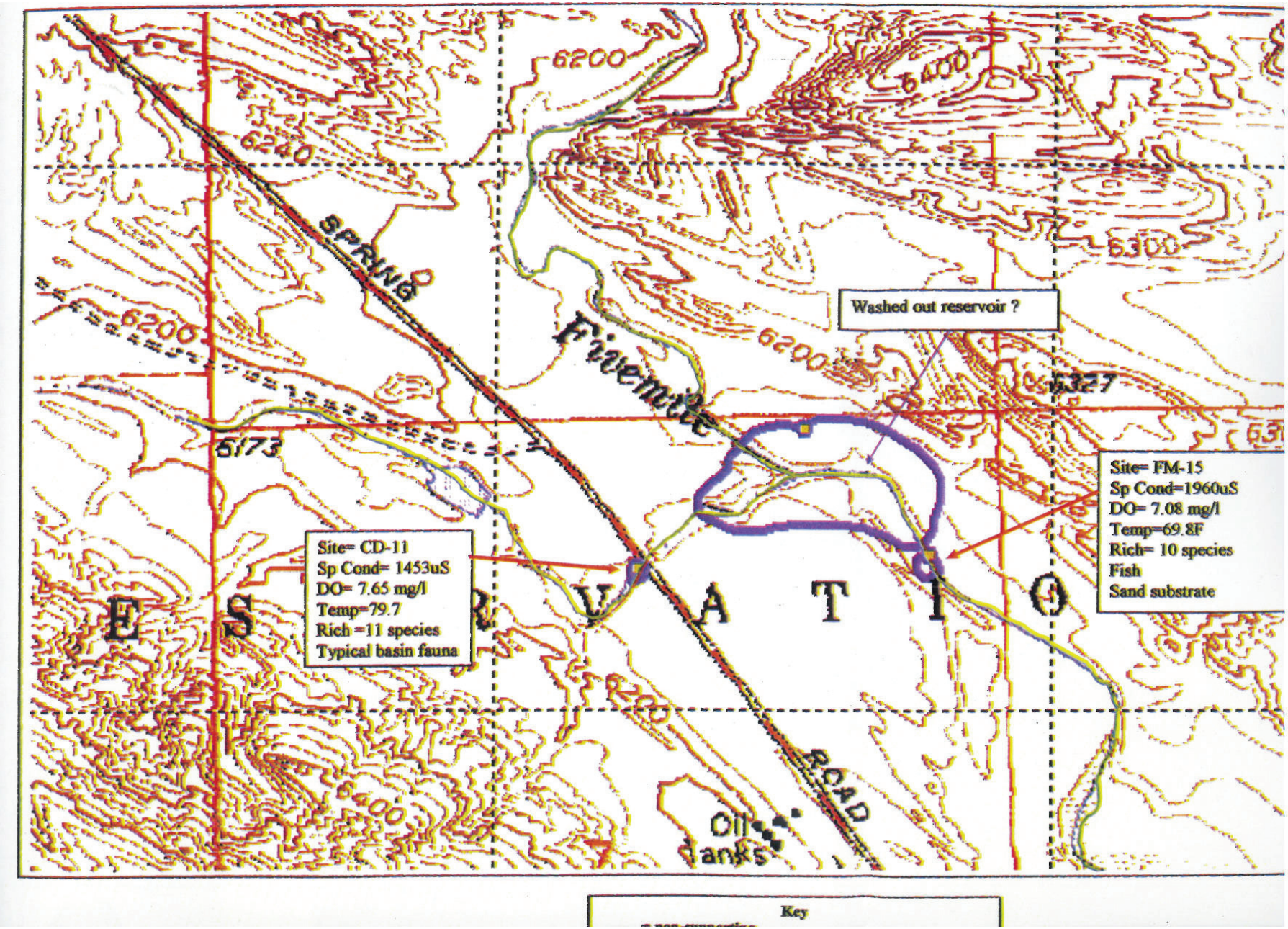
NPDES sites

Site	Site name	Str or Lk name	II_Geology	VI_Ros I_1	VI_Ros II_1	VI_Ros I_2	VI_Ros II_2	elev	Lat	Long	VIII_Anth_Ps_6	IX_Degree_6	Lim Season_6	X_Status	XI_Mgmt
CD-11	Coal Draw by road to Circle Ridge	Coal Draw Creek	Sed	C	3	C	5	6180	43° 25' 42.6"N	108° 55' 17.3"W	NPDES_O&G	Infl		FS	Perm

This stream reach is tentatively classified as a Rosgen C3 that is produced water influenced, but is fully supporting of its beneficial uses. All chemical parameters were well below their limits and there were 11 species of macroinvertebrates including many species that are typical of basin faunas such as *Tricorythodes* and *Ophiogomphus*. Fish were not collected but may not be present because of downstream physical barriers.

CD11-1: The water was slightly turbid but there were no precipitates. The chemistry and macroinvertebrates indicate a produced water influenced stream that is fully supporting of its beneficial uses.


6200
6400
6340
6300
6200
6327
6300
6200
Washed out reservoir ?
Fivemile
Site= FM-15
Sp Cond=1960uS
DO= 7.08 mg/l
Temp=69.8F
Rich= 10 species
Fish
Sand substrate
-11
= 1453uS
5 mg/l
9.7
species
basin fauna
V A T I O
ROAD
Oil
Tanks
Key
= non-supporting.


6200
6400
6240
SPRING
6300
Washed out reservoir ?
Fivemile
6200
6327
6173
Site= FM-15
Sp Cond=1960uS
DO= 7.08 mg/l
Temp=69.8F
Rich= 10 species
Fish
Sand substrate
Site= CD-11
Sp Cond= 1453uS
DO= 7.65 mg/l
Temp=79.7
Rich =11 species
Typical basin fauna
E S
V A T I O
620
ROAD
6400
Oil
Tanks
Key

CD11-2: the substrate is mostly cobble and the water was slightly turbid as is typical of these basin streams.

CD11-3: Dean and Kilo labeling water chemistry and water sediment sampling jars.

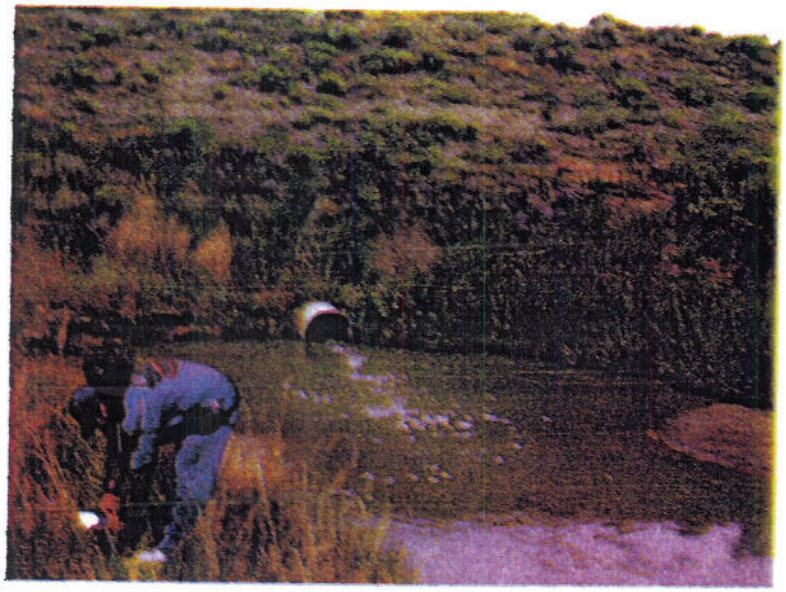
Five Mile Creek below the Circle Ridge/Maverick Springs Road (FM-14)

NPDES sites															
Site	Site name	Str or Lk name	III_Geology	VI_Ros II_1	VI_Ros II_1	VI_Ros II_2	VI_Ros II_2	elev	Lat	Long	VIII_Anth_Ps_6	IX_Degree_6	Lim Season_6	X_Status	XI_Mgmt
FM-15	Five Mile below Maverick Springs Rd.	Five Mile Creek	Sed	C	5			6120	43° 25' 41.6"N	108° 54' 57.1"W	NPDES_O&G	Infl		FS	Perm

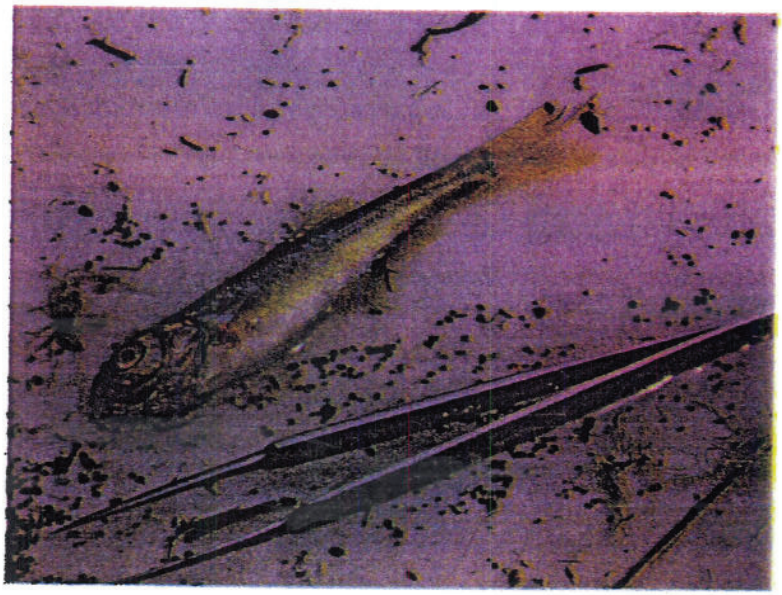
This site is located behind a large reservoir that has since lost its water because the outlet structure and gates have failed. The highest iron (1090 ug/l), Manganese (80 ug/l) and aluminum levels (1380 ug/l) were

found at this site and may also reflect the chemistry of the sediments from the reservoir bottom. This stream reach is considered fully supporting and produced water influenced.

Ten species of macroinvertebrates were found including the freshwater shrimp *Hyallela azteca*. The shrimp may also be remnant from the old reservoir. It is important to note that the substrate was almost entirely of sand and this will cause the diversity of macroinvertebrates to be lower. Fish were common in the sample and were tentatively identified as plains minnows (*Hybognathus hankinsoni*).



FM15-1: This site is located below a large washed out reservoir and the high iron, manganese, and aluminum levels may be a reflection of the sediments from the reservoir.



FM15-2: Fish, tentatively identified as plains minnows, were common. The reservoir gating structure may represent a barrier to further upstream colonization.

FM15-3: The substrates are almost entirely of sand and a low macroinvertebrate richness of 9 species is attributed to this poor shifting substrate. The water is turbid also limiting macrophytes growth.

Appendix B

Proceedings, The Range Beef Cow Symposium XVIII
December 9, 10, and 11, 2003, Mitchell, Nebraska
EFFECTS OF WATER QUALITY ON BEEF CATTLE
Trey Patterson and Pat Johnson
Department of Animal and Range Science
South Dakota State University
Rapid City, South Dakota

TDS (ppm) Interpretation Suggested Action
Less than 2000 Safe. Levels greater than 1000 may have some laxative effect and may reduce availability of trace minerals None required
2000-3000 Generally safe. May reduce performance, should not affect health Monitor water, especially as weather gets hot
3000-5000 Marginal. May reduce performance and affect health Test water for **sulfates**. Monitor water.
5000-7000 Poor water. Performance and health depression expected in times of high temperatures Test for **sulfates**. Use for low producing stock
7000-10,000 Dangerous. Performance and health depression expected.Do not use for pregnant or lactating cattle. **Sulfates** likely to be high.
Greater than 10,000 Extremely Dangerous. Not suitable for livestock Do not use

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Table 4. Interpretation of Water Sulfate Levels for Cattle
Sulfate level (ppm)
Interpretation
< 500Safe
500-1500Generally safe. Trace mineral availability may begin to be reduced. May decrease performance in confined cattle.
1500-3000Marginal. May be considered poor for confined cattle during hot weather. Sporadic cases of **polio** may be seen in confined cattle. Performance may be reduced.
3000-4000 Poor water. Sporadic cases of **polio** are probable, especially in confined cattle. Performance of grazing cattle may be affected.
> 4000 Dangerous. Health problems expected. Substantialreductions in performance expected.

CHIEF WASHAKIE

SHOSHONE & ARAPAHOE TRIBES

BOX 217
FORT WASHAKIE, WYOMING 82514

CHIEF BLACK COAL

January 24, 1992

RECEIVED: ORIGINAL
JAN 29 1992
8WM-C PERMITS

Robert Brobst 8WM-C
U.S. EPA
999 18th Street, Suite 500
Denver, CO 80202-2405

Re: Letter of Beneficial Use

Dear Mr. Brobst:

The Shoshone and Arapaho Tribes of the Wind River Indian Reservation, Wyoming are hereby submitting a "Letter of Beneficial Use", on behalf of Phillips Petroleum Company renewals for National Pollutant Discharge Elimination System Permits (NPDES), WY-0024945, WY-0024953; and WY-0024961, requesting that the discharge continue in accordance with the State regulations.

We are basing our request on the issue that the produced water discharge provides significant benefits to the area. These benefits include providing moisture to an extremely arid area as well as a source of water supply for not only stock cattle which occupy the area but indigenous wildlife including Pronghorn Antelope, local birds and rodents. In addition this water discharge has also effectively increased the surface value of this particular area by encouraging leasing and use. Therefore we steadfastly contend that the surface discharge of fresh water from the Sheldon Dome wells benefits the Tribes, the community, and the area wildlife. Even though, we do take this position in requesting that Phillips be awarded the permits, we would like to have Phillips meet the EPA and State requirements by the time the permits are up for renewal again. This would eliminate the need for land owners to issue a "Letter of Beneficial Use."

If we can be of further assistance, please call at 307-332-6625. Thank you for consideration on this matter.

Sincerely,

Alfred Ward, Chairman
Shoshone Business Council

for Burton Hutchinson, Chairman
Arapaho Business Council

cc: Phillips Petroleum Company